

New species of *Eupithecia* Curtis (Geometridae: Larentiinae) from Syria

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Abstract. One new species of *Eupithecia* from the “*venosata*” group is described from Syria: *E. weigti* sp. n. Five other species of the genus are mentioned as new to the Syrian fauna: *E. achyrdaghica* Wehrli, 1929, *E. ericeata* (Rambur, 1833), *E. reisserata* Pinker, 1976, *E. scalptata* Christoph, 1885, and *E. variostrigata* Alphéraky, 1876.

Introduction

The “*venosata*” species-group was first suggested by Dietze (1913) in his classic folio “Biologie der Eupitheciën”. He had included six allied Palaearctic species in this group: *E. carpophagata* Staudinger, 1871, *E. venosata* (Fabricius, 1787), *E. schiefereri* Bohatsch, 1893, *E. hilariata* Dietze, 1908, *E. silenicolata* Mabilie, 1867, and *E. alliararia* Staudinger, 1870. However, this species-group was later revised in detail by Schütze (1960). He described this group as subgenus *Bohatschia* Schütze and included within it 14 species of *Eupithecia*.

The “*venosata*” group is one of the most species rich in the genus *Eupithecia*, especially in the Mid-East, Transcaucasus and Irano-Afghanian Region of the Old World. This group is represented in this large area by at least the following 16 species: *E. venosata* (Fabricius, 1787), *E. silenicolata* Mabilie, 1867, *E. alliararia* Staudinger, 1870, *E. demetata* Christoph, 1885, *E. stigmaticata* Christoph, 1885, *E. amasina* Bohatsch, 1893, *E. schiefereri* Bohatsch, 1893, *E. ponderata* Dietze, 1906, *E. achyrdaghica* Wehrli, 1929, *E. cheituna* Brandt, 1938, *E. montanata* Brandt, 1938, *E. sectila* Brandt, 1938, *E. pfeifferata* Schütze, 1960, *E. problematicata* Schütze, 1960, *E. christophi* Mironov, 1988, and *E. pinkeri* Mironov, 1991. We found one very interesting specimen of this group in the collection of the Hungarian Natural History Museum (Budapest, Hungary), which is described here as a new species.

The fauna of the geometrid moths of the modern territory of Syria is still not well documented. Some species of *Eupithecia* were described from the former territory of Syria: Beirut, Akbés, Achyr-Dagh. Currently these localities are in Lebanon and Turkey. Only six species of *Eupithecia* were mentioned by Wiltshire (1936) and Mironov (2003) for Syria: *E. laquaearia* Herrich-Schäffer, 1848, *E. minusculata* Alphéraky, 1882, *E. dubiosa* Dietze, 1910, *E. quercetica* Prout, 1938, *E. centaureata* (Denis & Schiffermüller, 1775), and *E. gratiosata* Herrich-Schäffer, 1861. We add to this list five species which are new to the fauna of Syria.

Abbreviations

MNHU	Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin, Germany
NHMW	Naturhistorisches Museum Wien, Austria
SMNK	Staatliches Museum für Naturkunde Karlsruhe, Germany
TTM	Termesztudományi Múzeum Allattara (Hungarian Natural History Museum), Budapest, Hungary
ZFMK	Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany
ZISP	Zoological Institute, Russian Academy of Sciences, Saint Petersburg, Russia
ZSM	Zoologische Staatssammlung München, Germany

Eupithecia weigti Mironov & Ratzel, sp. n.

Material. Holotype ♀, Syria, 25 km W v. Damaskus, 2–3.vi.1961, Kasy & Vartian leg., Ratzel slide no. 12609/5w (coll. Vartian in NHMW). The specimen was loaned in former times by A. Vojnits from coll. Vartian and placed in TTM till now and will be returned in future to NHMW.

Description (Fig. 1). Wingspan 16.5 mm; forewing 8.5 mm. Labial palpi equal to the diameter of eye, covered with mixed brown and ash grey scales. Frons, vertex, and notum with mixture of light brown and dominating ash grey scales. Forewing rather elongated and narrow with narrowly rounded apex; ground colour ash grey; transverse lines very distinct, narrow, blackish brown; basal line evenly curved; antemedial almost straight, broadened anteriorly and indented in posterior half; medial line double, touching discal dot and sharply curved onto costa; postmedial line wavy, right-angled and broadened onto costa, with narrow, inward angle on CuA_2 vein; terminal area narrow without light subterminal line; discal dot relatively large, elongated and narrow, oblique, black. Hindwing slightly ovoid, paler, whitish grey; basal, ante- and postmedial transverse lines distinct; postmedial line right angled onto costa, with elongated, dark innerward dash on CuA vein; terminal area narrow, without light subterminal line; discal dot relatively large, paler than on the forewing; narrow and elongate. Fringe distinctly chequered with grey and white on all wings.

Male unknown.

Female genitalia (Fig. 5). Bursa copulatrix small, ovoid, almost completely and densely covered with very small, unisized spines except small area near base of ductus seminalis and colliculum, with two short and broad membranous diverticula (one under base of ductus seminalis, the other in anterior part of corpus bursae on other side). Ductus seminalis short, slightly broadened basally, attached to ductus bursae at right side near base of colliculum. Colliculum collar-like, relatively short and narrow. Antrum short, broad, membranous. Tergite A8 rectangular. Anterior and posterior apophyses short and narrow. Papillae anales relatively short and broad, covered with short setae.

Distribution. Syria.

Diagnosis. *Eupithecia weigti* sp. n. resembles externally *E. achyrdaghica* Wehrli, 1929 (Fig. 2); however, on the forewing the antemedial transverse line is placed on the shorter distance from the double medial line, which is later more wavy; also, discal dots on all wings are larger and broader than in *E. achyrdaghica*. The female genitalia are very



Figs 1–4. Adults of *Eupithecia* spp. (scale bar = 10 mm). 1. *E. weigti* Mironov & Ratzel, sp. n. (holotype, ♀). 2. *E. achyrdaghica* Wehrli, 1929 (Syria, ♀). 3. *E. ericeata* (Rambur, 1833) (Syria, ♂). 4. *E. variostrigata* Alphéraky, 1876 (Syria, ♂).

similar to those of *E. achyrdaghica* (Fig. 6), but the latter has a smaller membranous diverticulum which is attached to the middle of the corpus bursae, and a narrower beak-shaped, thick-walled sack opposite and in front of the base of ductus seminalis.

Derivatio nominis. We dedicate the name of this species to the well-known and highly respected German specialist on Eupitheciini Mr. Hans-Joachim Weigt (Schwerte), who is the author of many excellent publications on European “Blütenspanner”. His focus is on biology, ecology and photography of the species.

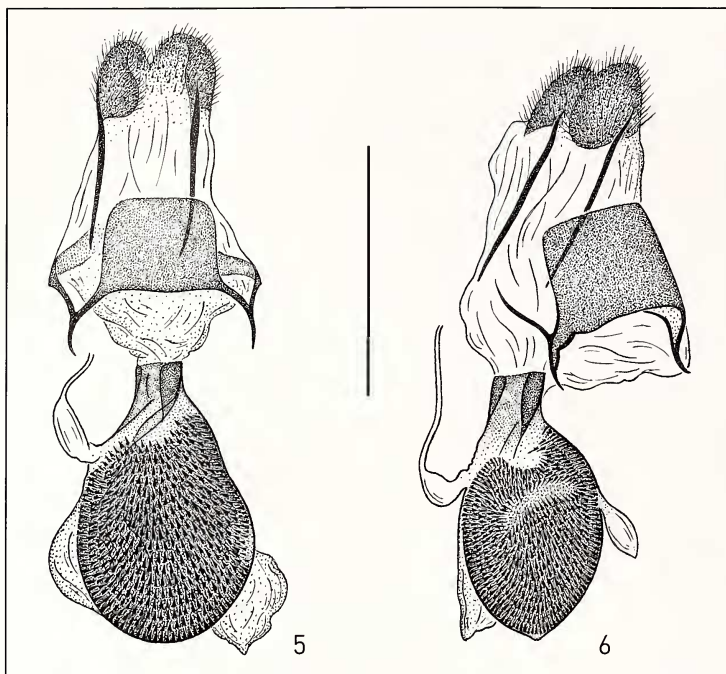
Remarks. Asian species *E. amasina*, *E. hilariata*, *E. achyrdaghica*, *E. sectila*, *E. pfeifferata*, *E. problematicata*, and *E. weigti* sp. n. are considered to form a group of closely allied species on the base of similarity of the male and female genitalia (Schütze 1960).

Eupithecia achyrdaghica Wehrli, 1929

Eupithecia achyrdaghica Wehrli, 1929, *Mitt. münch. ent. Ges.* 19 (10–12): 326, pl. 25, fig. 14. Syntypes 1♂, 2♀ (ZFMK; not traced), Syria [Turkey]: Achyr-Dagh, Bertiz Jaila, 1000–1800 m.

Material. 2♀, Syria, 25 km W v. Damaskus, 2–3.vi.1961, Kasy & Vartian leg., Ratzel slide no. 14609/2w (coll. Vartian in NHMW). The specimens were loaned by A. Vojnits from coll. Vartian some years ago and placed in TTM; they will be returned in the future to NHMW. There is one additional ♀ captured from the same locality and date in TTM.

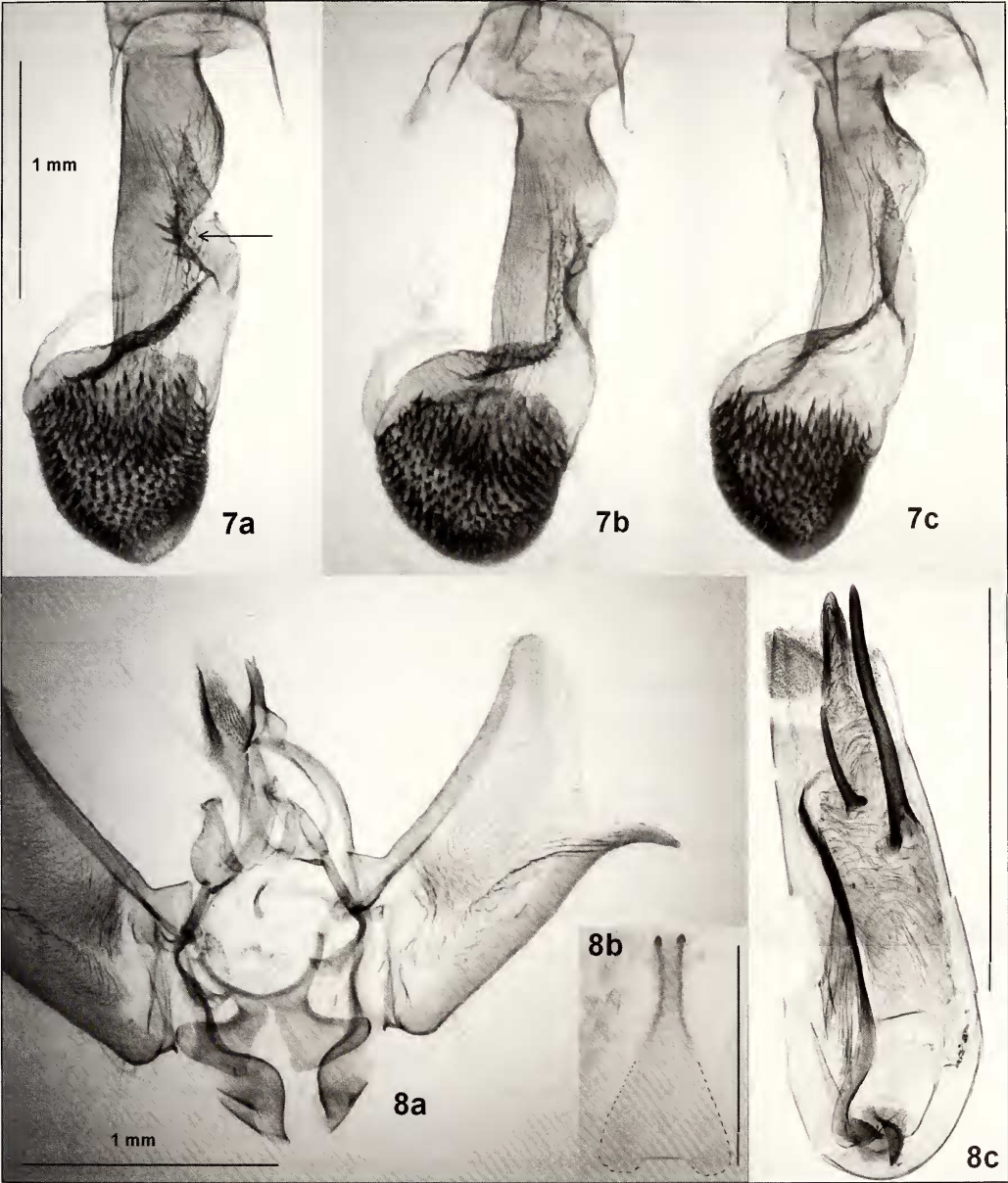
This species was described from three specimens from Achyr-Dagh (formerly in Syria, now in Turkey). According to our data and recent personal comments of Hossein Rajaei (ZFMK), all the type specimens are unfortunately absent from the drawer with the



Figs 5–6. Female genitalia of *Eupithecia* spp. (scale bar = 1 mm). 5. *E. weigiti* Mironov & Ratzel, sp. n. 6. *E. achyrdaghica* Wehrli, 1929 (Syria).

original species label “*achyrdaghica*” in the collection of ZFMK. The location of the types of this species is currently unknown. Wehrli (1929) illustrated the type specimen with a small black and white photograph, but did not provide an image of the genitalia. We illustrate here the female genitalia of recent material from Syria (Fig. 6). Because the types of *achyrdaghica* are absent and may be lost, and the type genitalia have not been illustrated, Wehrli’s original detailed descrip-

tion is very important. We include here the most important parts of his text. “Grundfarbe oberseits ein weißliches Grau, sehr fein schwarz punktiert; die schwarzen Linien unterbrochen, nur aus Bogenstrichelchen und Aderpunkten zusammengesetzt, was der Art, zusammen mit der Farbe und den prominenten Mittelstrichen, ein sehr charakteristisches Aussehen verleiht. ... Hfl. ähnlich dem Vfl., Costalzone etwas heller; die Linien reichen nicht bis zum Vorderrand. Basale, subbasale und antemediane Linien nur am Innenrand erkennbar. Mittelstrich kräftig. Die nur bis zum Mittelfleck reichende mittlere und die zwei nachfolgenden Linien bilden vor dem Innenrand einen scharfen Zacken basalwärts. ... Der weibliche Kopulationsapparat erweist eine ziemlich nahe Verwandtschaft mit *E. alliaris* Stgr. Bursa kleiner als bei *alliaris*, dorsal ganz mit Stacheln besetzt, die feiner sind als bei jener. Ventral rechts eine kleine stachelfreie Fläche, links Gruppen größerer Stacheln. Auf der linken Seite, etwa in der Mitte, sitzt ein kleiner Bursaanhang, wie ihn von allen Eupitheciern einzig *alliaris* besitzt. Der Ductus seminalis geht rechts ab und ist nicht wie bei *alliaris* ... stark dorsal nach links gerückt, ein weiteres wichtiges Unterscheidungsmerkmal; seine Erweiterung beim Abgang erheblich kleiner bei der neuen Art. Der Ductus bursae kurz breit. Auf der ventralen Seite der Bursa oral ein merkwürdiges, breit aufsitzendes, kurz schnabelförmiges Gebilde. Nach dem Befund am Genitalorgan handelt es sich sicher um eine neue, bisher nicht bekannte Art, die zweite mit einem gestielten kleinen Bursa-Anhang, von *alliaris* verschieden unter Anderem durch den Sitz links, und den Abgang des ductus seminalis ganz rechts”.



Figs 7–8. Genitalia of *Eupithecia ericeata* (Rambur) from Syria. **7a–7c.** Variation in the spines on bursa copulatrix in the female. **8a–8c.** Male.

In addition, we also provide a translation of this description, but it should be noted that the German text is mostly in note form, which makes it less comprehensible, and hence this translation is rather simple. “Groundcolour of upperside whitish grey; very finely dotted with black; the black lines disconnected, composed only of bent dashes and dots on the veins. Together with the colour and the prominent discal streaks this gives the species a very characteristic appearance. ... Hindwing similar to forewing,

costa somewhat brighter; lines not reaching costal margin. Basal, subbasal and antemedial transverse lines only visible at inner margin. Discal dash strong. Middle transverse line only reaching discal dot. This and the two following lines forming a sharp basally-directed spike near the inner margin. ...

The female genitalia show a rather close relationship with *E. alliaria* Stdr. ... Bursa is smaller than in *alliaria*, dorsally completely covered with spines, which are finer than in *alliaria*. Ventrally on the right side a small area without spines, on the left groups of larger spines. On the left side, nearly in the center a small appendix of the bursa is located, as in *alliaria*; ... Ductus seminalis branches off on the right side and, unlike *alliaria*, is not moved far dorsally to the left side, an additional important differential character; the enlargement [of ductus] near the branching is notably smaller in the new species [*achyrdaghica*]. Ductus bursae short and broad. On the ventral side of the bursa [there is] orally a strange broadly based, short and beak-shaped structure. According to the genital organs this is certainly a new, hitherto unknown species, the second one with a small petiolated appendix of the bursa, differing from *alliaria* among other things by the placement [of the appendix] on the left side and the branching of the ductus seminalis on the right side".

Eupithecia ericeata (Rambur, 1833)

Larentia ericeata Rambur, 1833, *Annls Soc. ent. Fr.* 2 (1): 50, pl. 2, fig. 14. Lectotype ♀ (coll. C. Herbulot in ZSM; examined), [France]: [Corsica], Bastia.

Material. 1♂, Syria, prov. Ladhikiyah, Jabal an Nusayriyah, Slinf, 8–9.x.2004, P. Gyulai & A. Caral leg., Ratzel slide no. GU27911/2m (SMNK); 3♀, same locality, 17–18.x.2004, P. Gyulai & A. Caral leg., Ratzel slides nos GU27911/1w, GU27911/3w, GU27911/4w (SMNK).

All four known Syrian specimens of this Mediterranean species show considerable external variability, from the typical light form with distinct pattern on the forewings (Fig. 3) to unicolorous melanistic. The female genitalia are very variable as well: middle part of the ductus bursae with the longitudinal crest of five large spines in the first specimen, with only one similar large spine in the second and without large spines (as in European specimens) in the third specimen (Figs 7a–c). Possibly, this variability is a consequence of the influence of the extreme sunny conditions in desert areas, as well as in high mountain areas. Under these conditions the development of a subspecies of *Eupithecia ericeata* cannot be excluded. The male genitalia are similar to those from European specimens (Figs 8a–c).

Eupithecia variostrigata Alphéraky, 1876

Eupithecia variostrigata Alphéraky, 1876, *Horae Soc. ent. Ross.* 10: 40. Holotype ♂ (ZISP; not traced; one topotype in ZISP examined), Russia: Taganrog.

Material. 1♂, 1♀, Syria, prov. Dimashq, Jabal Lubnan ash Sharqi, Dier Atteian, W of Qarah, 10–11.x.2004, P. Gyulai & A. Caral leg., Ratzel slides nos GU27911/6m, GU27911/7w (SMNK); 1♂, Syria, prov. Dimashq, Jabal Lubnan ash Sharqi, Ma'lula, 11–12.x.2004, P. Gyulai & A. Caral leg., Ratzel slide no. GU27911/5m (SMNK).

This is a widespread and very characteristic Mediterranean autumnal species, occurring from the southern Spain in the west to the western Pamirs in the east (Mironov 2003). It is a well-recorded species in the countries adjacent to Syria (i.e., Turkey, Israel, Jordan, and Iran). *E. variostrigata* has not hitherto been recorded from Syria (Fig. 4).

***Eupithecia reisserata* Pinker, 1976**

Eupithecia reisserata Pinker, 1976, *Z. ArbGem. öst. Ent.* 28 (1–3): 2, figs 5, 6, 19. Holotype ♂ (NHMW; 4 paratypes ♂, ♀ examined), [Turkey]: Anatolia, Kizilcahamam.

Eupithecia reisserata levarii Hausmann, 1991, *Mitt. Münch. ent. Ges.* 81: 133, pl. 6, figs 42, 43; pl. 13, fig. 135. Holotype ♂ (SMNK), Jordan (north): Rumman.

Material. 1♀, Syria, 25 km W. v. Damaskus, 15–16.V.1961, Kasy & Vartian, Vojnits slide no. 17468♀ (TTM).

This small East-Mediterranean species from the *interruptofasciata* group occurs in Greece along the coast of Aegean Sea, Crete, Cyprus, Turkey, Armenia, Azerbaijan (Nakhichevan region), and Jordan (subsp. *levarii* Hausmann, 1991). It is a new species to the fauna of Syria.

***Eupithecia scalptata* Christoph, 1885**

Eupithecia scalptata Christoph, 1885, in Romanoff, *Mém. Lépid.* 2: 134, pl. 7, fig. 4. Lectotype ♂ (ZISP; examined), [Turkmenistan]: Ashkhabad.

Material. 1♀, Syria, 20 km NE v. Damaskus, 16–23.V.1961, Kasy & Vartian (TTM).

This is a handsome, very characteristic East-Mediterranean species, occurring from the southern Albania and Greece in the west to the Lower Volga region (Volgograd oblast) in the north-east and Turkmenistan and Iran in the south-east (Mironov 2003). *E. scalptata* has not hitherto been recorded from Syria.

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References

- Dietze, K. 1913. Biologie der Eupitheciiden. Teil II. Berlin, 173 S.
- Mironov, V. 2003. Larentiinae II (Perizomini and Eupitheciini). – In: Hausmann, A. (ed.): The Geometrid Moths of Europe, Vol. 4: 1–463. Apollo Books, Stenstrup.
- Schütze, E. 1960. Alte und neue Eupitheciiden aus Iran (Lep. Geom.). Eupitheciiden-Studien XV. – Mitteilungen der Münchner Entomologischen Gesellschaft **50**: 1–23, Tafn. i–xiii.
- Wehrli, E. 1929. Zwei neue Eupitheciiden aus der Ausbeute des Herrn E. Pfeiffer, München, aus dem Taurus (Lepidoptera Geometridae). – Mitteilungen der Münchner Entomologischen Gesellschaft **19** (10–12): 324–328, 4 figs.
- Wiltshire, E. P. 1936. More notes on the early stages of Syrian Lepidoptera. – The Entomologist's Record and Journal of Variation **48** (10, suppl.): 9–11.